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| Topic | Name: |
| 3-1 Energy in Earth's Atmosphere page 88 | **Teacher:** |
|  | **Class:** |
|  | **Date** |
| Questions/Main Ideas: | **Notes** |
| EQ: | What happens to the energy from the Sun?  What is the Greenhouse effect?  How does the Earth’s surface get warmed? |
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| Energy from the Sun | \*energy travels to Earth as electromagnetic waves (form of energy that can move through the vacuum of space)  \*Radiation-the direct transfer of energy by electromagnetic waves  \*Energy travels from the sun as:  1. visible light (allows us to see)  2. infra**red** radiation (form of heat)  3. ultraviolet radiation-UV rays (sunburn) |
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| Visible Light    Longest Middle Shortest | \*includes all the colors that you see in a rainbow: red, orange, yellow, green, blue, and violet  \*Red and orange-the longest wavelengths  \*Blue and violet- the shortest wavelengths  \*Different colors are the result of different wavelengths |
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| Non-Visible Radiation | \*infrared radiation has longest wavelengths (longer than red light)  \*can be felt as heat  \*ultraviolet radiation-has wavelengths shorter than violet light  \*sun gives off ultraviolet radiation-a form of invisible energy  \*UV causes sunburns, skin cancer, and eye damage |
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| Energy in the Atmosphere | \*some sunlight is absorbed or reflected by the atmosphere before it can reach the surface  \*the rest passes through the atmosphere to the surface (about 50%)  \*Ozone layer in the Stratosphere absorbs most of the ultraviolet radiation  \*Water vapor and Carbon Dioxide absorb some infrared radiation  \*Cloud, dust, and other gases also absorb energy  \*Dust particles and gases in the atmosphere reflect light in all directions-called scattering |
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| Energy at Earth's Surface | \*about half of the sun's energy is absorbed by the land and water and changed into heat  \*when Earth's surface is heated, it radiates most of the energy back into the atmosphere as infrared radiation  \*gases and clouds form a 'blanket' around Earth that holds heat in the atmosphere (greenhouse effect)  \*Greenhouse Effect- a natural process that keeps Earth's atmosphere at a temperature that is comfortable for most living things |
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| Summary: | |
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